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Kinetics and redox regulation of Gpx1, an atypical 2-Cys peroxiredoxin, in Saccharomyces cerevisiae.

AUTHOR(S):

Ohdate, Takumi; Kita, Keiko; Inoue, Yoshiharu

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Suppelementary Table 1 Comparison of Kinetic Parameters of Non-SeCys-type GPx from Various Sources

Glutathione system						Tthioredoxin system						Reference/Source
Sc Gpx1	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	**Sc Gpx1**	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	This study. *S. cerevisiae*
H_2O_2	2.98	141	578	4.10×10^{6}	2.11×10^{-2}	H_2O_2	0.739	120	143	1.19×10^{6}	6.16×10^{-3}	
t-BHP	0.579	75	112	1.49×10^{6}	7.72×10^{-3}	*t*-BHP	1.25	223	242	1.09×10^{6}	5.6×10^{-3}	
Sc Gpx2	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	**Sc Gpx2**	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	Tanaka *et al.* (2005) *J. Biol. Chem.* 280, 42078-42087. *S. cerevisiae*
H_2O_2	0.27	170	99.4	5.85×10^{5}	1.59×10^{-3}	H_2O_2	2.6	20	957	4.79×10^{7}	0.13	
t-BHP	0.295	313	109	3.48×10^{5}	9.42×10^{-4}	*t*-BHP	1	62.5	368	5.89×10^{6}	0.016	
H_2O_2	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	H_2O_2	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	Iqbal *et al.* (2006) *FEBS J.* 273, 5589-5597. *Arabidopsis thaliana*
At GPX1	ND	—	—	—	—	**At GPX1**	0.262	17.1	830	4.9×10^{8}	1.53×10^{-2}	
At GPX2	ND	—	—	—	—	**At GPX2**	0.218	15.3	690	4.5×10^{8}	1.42×10^{-2}	
At GPX5	ND	—	—	—	—	**At GPX5**	0.247	25.4	780	3.1×10^{8}	9.72×10^{-3}	
At GPX6	ND	—	—	—	—	**At GPX6**	0.269	14	850	6.1×10^{8}	1.92×10^{-2}	
Cr GPx	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	**Cr GPx**	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	Fischer *et al.* (2009) *Plant Mol. Biol.* 71, 569-583. *Chlamydomonas reinhardtii*
H_2O_2	ND	—	—	—	—	H_2O_2	—	54	7.4	1.37×10^{5}	—	
t-BHP	ND	—	—	—	—	*t*-BHP	—	732	11.3	1.6×10^{4}	—	
CuOOH	ND	—	—	—	—	CuOOH	—	63	8.9	1.41×10^{5}	—	
GPXle1	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	**GPXle1**	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	Herbette et *al.* (2002) *Eur. J. Biochem.* 269, 2414–2420. *Lycopersicon esculentum*
H_2O_2	ND	—	—	—	—	H_2O_2	0.153	13.7	—	—	1.12×10^{-2}	
t-BHP	0.037	128	—	—	2.94×10^{-4}	*t*-BHP	0.147	16.6	—	—	8.85×10^{-3}	
LAOOH	0.027	39.3	—	—	6.98×10^{-4}	LAOOH	0.147	8.6	—	—	1.7×10^{-2}	
PCOOH	0.019	24.9	—	—	7.63×10^{-4}	PCOOH	0.108	14.4	—	—	7.5×10^{-3}	
GPXha2	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	**GPXha2**	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	Herbette et *al.* (2002) *Eur. J. Biochem.* 269, 2414–2420. *Helianthus annuus*
H_2O_2	ND	—	—	—	—	H_2O_2	0.147	13.9	—	—	1.06×10^{-2}	
t-BHP	0.0271	95.3	—	—	2.84×10^{-4}	*t*-BHP	0.161	14.1	—	—	1.14×10^{-2}	
LAOOH	0.0424	82.7	—	—	5.16×10^{-4}	LAOOH	0.169	16.2	—	—	1.05×10^{-2}	
PCOOH	0.0158	12.1	—	—	1.31×10^{-3}	PCOOH	0.126	9.44	—	—	1.34×10^{-2}	
PHCC-TPx	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	**PHCC-TPx**	V_{max}	K_m	k_{cat}	k_{cat}/K_m	V_{max}/K_m	Jung et al. (2002) *J. Biol. Chem.* 277, 12572–12578. Chinese cabbage
H_2O_2	ND	—	—	—	—	H_2O_2	17.2	4.9	—	—	3.5	
t-BHP	ND	—	—	—	—	*t*-BHP	7.6	5.5	—	—	1.4	
CuOOH	ND	—	—	—	—	CuOOH	14.3	11.7	—	—	1.2	

Each kinetic parameter of Sc Gpx1 was obtained from the avarage of two independent experiments.
In all At GPxs, H_2O_2 was used as a substrate.

ND	The enzyme activity was not detected.
—	The kinetic parameter was not determined.
t-BHP	*tert*-Butyl hydroperoxide
LAOOH	Linoleic acid hydroperoxide
PCOOH	Phosphatidylcholine dilinoleoyl hydroperoxide
CuOOH	Cummene hydroperoxide